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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,647	12/05/2005	Truls Arnegaard	14 0209-PCT-US	5788
28116	7590	09/30/2009		
WesternGeco L.L.C. Jeffrey E. Griffin 10001 Richmond Avenue HOUSTON, TX 77042-4299			EXAMINER HUGHES, SCOTT A	
			ART UNIT 3663	PAPER NUMBER
			NOTIFICATION DATE 09/30/2009	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/532,647

Applicant(s)

ARNEGAARD ET AL.

Examiner

SCOTT A. HUGHES

Art Unit

3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12, 13 and 15-29 is/are pending in the application.
- 4a) Of the above claim(s) 9 and 18-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10, 12, 13, 15-17 and 26-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/20/2009 has been entered.

Response to Arguments

Applicant's arguments and amendments filed 7/20/2009 have been fully considered but they are moot in view of the new grounds of rejection presented below.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "wherein the line network comprises." There is insufficient antecedent basis for this limitation in the claim. Applicant deleted the limitation of a line network from claim 1, and therefore there is now a lack of antecedent basis for the term "the line network" in claim 6.

For the purposes of this action, claim 6 will be examined as though claim 1 requires a line network as part of the data collection system.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 4, 6, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Smith (US20040252585).

With regard to claim 1, Smith discloses a seismic acquisition system (abstract) comprising:

a plurality of seismic data sources 20 (Fig. 2) (described as feature 21 in the specification) for generating seismic data ([0014]; [0019]);

a data collection system 20 utilizing an open network protocol (Fig. 1) ([0014]; [0019-0026]);

a plurality of data source nodes 14, wherein each source node is coupled to a portion of the plurality of seismic data sources ([0014]) (Fig. 1); and

a router 16 coupled to a portion of the data source nodes 14 and the data collection system (Fig. 1) ([0014]; [0020-0023]), wherein the router is configured to route the seismic data generated by the portion of the plurality of seismic data sources to the

data collection system 20 in accordance with an open network protocol (Fig. 1) ([0014]; [0021-0026]).

With regard to claim 2, Smith discloses that the router routes data to the seismic data sources ([0014]) (remote processing device access data from any geophone over the network through the router).

With regard to claim 4, Smith discloses at least one additional router for routing data generated by the seismic data sources to the data collection system through the data source nodes in accordance with the open network protocol (Fig. 1). Smith shows a plurality of routers in the network that route data to the data collection system through the data source nodes using the open network protocol ([0014]).

With regard to claim 6, Smith discloses that the line network comprises a land based seismic cable ([0022]).

With regard to claim 10, Smith discloses that the open network protocol includes the Internet Protocol ([0021-0026]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 5 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith as applied to claim 1 above, and further in view of Johnson (Eos. Trans. AGU Fall Meeting, 2001).

With regard to claims 3, 5, and 27 Smith does not disclose that each of the data source nodes or data sources are assigned at least two respective network addresses under the open network protocol. Johnson teaches a network setup for monitoring seismic events, and teaches that the source nodes and data collection system are assigned at least two respective network addresses under open network protocol (Pages 1-2). It would have been obvious to modify Smith to include two respective network addresses for the components of the system as taught by Johnson in order to have a network that can operate in different modes and to simplify the physical cables needed between devices.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith as applied to claim 1 above, and further in view of Fukui (6131119).

With regard to claim 13, Smith does not specifically disclose a location mapping service for generating a mapping between network addresses of the data collection system, the router, the data source nodes, and the seismic data sources and physical locations of the data collection system, the router, the data source nodes, and the seismic data sources. Smith discloses a network of the components of the system, but does not specifically disclose a mapping service to map the network addresses to the physical locations of the system. Fukui teaches a mapping service that maps network

addresses to physical locations (abstract; Column 2, Lines 30-40). It would have been obvious to modify Smith to include a mapping service to map the network addresses to physical locations as taught by Fukui in order to be able to create a physical network topography of the equipment in the system so that the network configuration and topology of the devices can be displayed to check that the system is configured properly. Smith does not disclose an auto-configuration capability for automatically reconfiguring the network upon the addition of an additional piece of seismic equipment. Fukui teaches that it is known to create an autoconfiguration capability of a network of components that automatically reconfigures the network upon the addition of an additional piece of equipment (abstract; Column 6, Lines 1-11; Column 8, Line 24 to Column 10, Line 2). It would have been obvious to modify Smith to include an autoconfiguration capability as taught by Fukui in order to update the network when new pieces of equipment need to be installed to replace geophone units that stop working.

Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith as applied to claim 1 above, and further in view of Read (4885724).

With regard to claims 7-8, Smith does not disclose that the seismic data sources include at seismic sources that are vibrators. Smith discloses a seismic survey network, but focuses on the receivers of the seismic waves rather than on the generators of the seismic waves. Read teaches that seismic sources that are vibrators are known sources used in seismic surveys (abstract; Columns 2-3) (Fig. 1b). It would have been obvious to modify Smith to include vibrators as seismic sources in order to have

sources for seismic prospecting that are economical and that can be programmed to generate desired source waveforms.

Claims 28, 12, 15, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith as applied to claim above, and further in view of Fukui (6131119) and Arescon (Embedded Linux in a Soft Real-Time Task: The Canadian Geological Survey Internet Seismometer).

With regard to claim 28, Smith discloses that the seismic data stations have clocks, and that time stamping of the data is done. Smith does not disclose a synchronization service for synchronizing a plurality of clocks for the data collection system, the router, the data source nodes, and the seismic data sources. Smith does teach that these devices are connected in a network using an IP protocol, and teaches that the system can be configured to operate with other known internet protocols ([0026]). Arescon teaches a seismic data collection system that uses an open network protocol, and teaches that a synchronization service in form of Network Time Protocol is used as the protocol of the network system (Page 9). It would have been obvious to modify Smith to include using NTP as the protocol of the network in order to ensure that data packets being sent by different devices on the network all have the same time reference.

With regard to claim 12, Arescon teaches that the synchronization service comprises the Network Time Protocol (Page 9).

With regard to claim 15, Arescon teaches that the synchronization service tolerates changes in topology (is maintained by NTP and several remote timeservers) (Page 9).

With regard to claim 16, Arescon teaches that the synchronization service synchronizes clock hierarchically (Page 9).

With regard to claim 17, Arescon teaches that the service tolerates breaks (Pages 9-10).

Claims 26 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith (US20040252585) in view of Johnson (Eos. Trans. AGU Fall Meeting, 2001).

With regard to claims 26, Smith discloses a seismic acquisition system (abstract) comprising:

- a first line network (upper connection of 12 and router 16 to TCP/IP Network 18 and RPDs 20 in Fig. 1) ([0014]; [0021-0022]) having:

- a first plurality of seismic data sources 20 (Fig. 2) (described as feature 21 in the specification) for generating seismic data ([0014]; [0019]);

- a first data collection system 20 (Fig. 1) ([0014]; [0019-0026]);

- a first plurality of data source nodes 14, wherein each source node is coupled to a portion of the first plurality of seismic data sources ([0014]) (Fig. 1) via a first medium bandwidth data path ([0010]; [0014]; [0022]) (medium bandwidth connection of ethernet cables disclosed); and

a first router 16 (upper router in Fig. 1) coupled to a portion of the first plurality of data source nodes 14 and to the first data collection system (Fig. 1) ([0014]; [0020-0023]) via a high bandwidth data path ([0010]; [0014]; [0022] – higher bandwidth cable to handle more data as disclosed in paragraph [0010]), wherein the router is configured to route the seismic data generated by the portion of the first plurality of seismic data sources to the first data collection system 20 in accordance with an open network protocol (Fig. 1) ([0014]; [0021-0026]).

Smith does not disclose that the seismic data sources, data collection system, data source nodes, and routers are assigned at least two network addresses. Johnson teaches that it is known in seismic networks using IP addresses for the routers and equipment to allow several IP addresses to be assigned to a single router or other component of the system (multi-netted system) (Pages 1-2). It would have been obvious to modify Smith to include assigning at least two network addresses to the components of the seismic acquisition system that uses the open protocol as taught by Johnson in order to simplify physical cables between devices and to allow for data transfer to continue in the event of system outages or failures in certain parts of the system.

With regard to claim 29, Smith discloses a seismic acquisition system (abstract) comprising:

a second line network (lower connection of 12 and router 16 to TCP/IP Network 18 and RPDs 20 in Fig. 1) ([0014]; [0021-0022]) having:

a second plurality of seismic data sources 20 (Fig. 2) (described as feature 21 in the specification) for generating seismic data ([0014]; [0019]);

a second data collection system 20 (Fig. 1) ([0014]; [0019-0026]);

a second plurality of data source nodes 14, wherein each source node is coupled to a portion of the second plurality of seismic data sources ([0014]) (Fig. 1) via a second medium bandwidth data path ([0010]; [0014]; [0022]) (medium bandwidth connection of ethernet cables disclosed); and

a second router 16 (lower router in Fig. 1) coupled to a portion of the second plurality of data source nodes 14 and to the second data collection system (Fig. 1) ([0014]; [0020-0023]) via a high bandwidth data path ([0010]; [0014]; [0022] – higher bandwidth cable to handle more data as disclosed in paragraph [0010]), wherein the router is configured to route the seismic data generated by the portion of the second plurality of seismic data sources to the second data collection system 20 in accordance with an open network protocol (Fig. 1) ([0014]; [0021-0026]).

Smith does not disclose that the seismic data sources, data collection system, data source nodes, and routers are assigned at least two network addresses. Johnson teaches that it is known in seismic networks using IP addresses for the routers and equipment to allow several IP addresses to be assigned to a single router or other component of the system (multi-netted system) (Pages 1-2). It would have been obvious to modify Smith to include assigning at least two network addresses to the components of the seismic acquisition system that uses the open protocol as taught by Johnson in order to simplify physical cables between devices and to allow for data

transfer to continue in the event of system outages or failures in certain parts of the system.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCOTT A. HUGHES whose telephone number is (571)272-6983. The examiner can normally be reached on M-F 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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